

### REMARKS

The Applicant has carefully reviewed the application in light of the Office Action dated May 7, 2008. Applicant respectfully traverses all rejections and assertions herein.

#### **Claim Rejections – 35 U.S.C. §102 and §103**

Claims 26, 27, 29, 30, 33, 35, 37, 38, 39, 40, 41, 48, 49, 50, 53, 54, 55, 57, 59, 60, 61, 62, 63, 69, 70, 71, 75, 77, 78, 79, 81, 83, 85, 90, 91, and 92 are rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Pat. No. 6,923,275 issued to Gardes (hereinafter “*Gardes*”).

Claims 42, 43, 44, and 64 are rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Pat. No. 5,435,400 issued to Smith (hereinafter “*Smith*”) in view of U.S. Pat. No. 5,411,104 issued to Stanley (hereinafter “*Stanley*”) and the *Underbalanced Drilling Manual* (cited by Applicant 1/11/05) and *Gardes*.

Claim 46 is rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Pat. No. 5,355,967 issued to Mueller et al. (hereinafter “*Mueller*”) in view of *Stanley* and the *Underbalanced Drilling Manual* and *Gardes*.

Claims 42, 43, 51, and 52 are rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Pat. No. 4,134,463 issued to Allen (hereinafter “*Allen*”) in view of *Stanley* and the *Underbalanced Drilling Manual* and *Gardes*.

Claims 32, 34, 58, 65, 66, 68, 72, and 73 are under 35 U.S.C. §103(a) as being unpatentable over *Smith* in view of *Stanley* and the *Underbalanced Drilling Manual* and *Gardes*.

Claims 76, 80, and 84 are rejected under 35 U.S.C. §103(a) as being unpatentable over *Stanley* in view of U.S. Pat. No. 3,534,822 issued to Campbell (hereinafter “*Campbell*”) and the *Underbalanced Drilling Manual* and *Gardes*.

Claims 86-88 are rejected under 35 U.S.C. §103(a) as being unpatentable over *Stanley* in view of U.S. Pat. No. 5,785,133 issued to Murray (hereinafter “*Murray*”), and in view of *Campbell* (U.S. Pat. No. 3,534,822) and the *Underbalanced Drilling Manual* and *Gardes*.

With respect to the §102 and §103 rejections based (or based in part) on U.S. Patent 6,923,275 to *Gardes*, Applicant respectfully traverses. As noted by the Office Action, the instant application claims priority to applications with earlier effective dates than *Gardes*. However, the Office Action asserts that the priority application does not include “underbalanced” drilling in a coal seam. (See Office Action, p. 2).

Applicant respectfully disagrees and submits that the priority applications do teach underbalanced drilling in a coal seam. For example, priority patent U.S. Patent No. 6,280,000 filed November 20, 1998 ('000 Patent) provides:

A still further object is to provide such a method and apparatus in which the prior art problem of overbalanced pressure conditions is overcome by injection of aerating gas into the drilling fluid to reduce bottom hole hydrostatic pressure. *See* '000 Patent, Summary at Col. 1, line 66 – Col. 2, line 3.

In accordance with the present invention, under [sic] balanced drilling conditions in the drainage bores 40, 42 are avoided by circulating compressed air down the bore of vertical well 14 and back up through the offset well 24. The circulated air will admix with the drilling fluid in the annulus around the drill string 32 and create bubbles throughout the column of drilling fluid. This has the effect of lightening the hydrostatic pressure of the drilling fluid and reducing the downhole pressure sufficiently that drilling conditions do not become under [sic] balanced. Compressed air also may be circulated down through the drill string along with the drilling mud in order to aerate the drilling fluid in the annulus as the offset well is being drilled and, if desired, as the drainage pattern is being drilled. Drilling the well bore with the use of an air hammer bit or an air powered downhole motor concomitantly will supply compressed air to the drilling fluid. Compressed air which is used to power the bit or a downhole motor automatically mixes with the drilling fluid as it exits in the vicinity of the drill bit. However, the

larger volume of air which can be circulated down the vertical shaft 14 permits greater aeration of the drilling fluid than generally is possible by air supplied through the drill string. *See* '000 Patent, Detailed Description Col. 4, lines 9-29.

As another example, priority patent U.S. Patent No. 6,357,523 filed November 19, 1999 and which claims priority to the '000 Patent ('523 Patent), provides:

Another technical advantage of the present invention includes providing an improved method and system for drilling into low-pressure reservoirs. In particular, a downhole pump or gas lift is used to lighten hydrostatic pressure exerted by drilling fluids used to remove cuttings during drilling operations. As a result, reservoirs may be drilled at ultra-low pressures without loss of drilling fluids into the formation and plugging of the formation. *See* '523 Patent, Summary at Col. 3, line 11-19.

To prevent over balance drilling conditions during formation of the drainage pattern 50, air compressors 60 are provided to circulate compressed air down the substantially vertical well bore 12 and back up through the articulated well bore 30. The circulated air will admix with the drilling fluids in the annulus around the articulated drill string 40 and create bubbles throughout the column of drilling fluid. This has the effective of lightening the hydrostatic pressure of the drilling fluid and reducing the down-hole pressure sufficiently that drilling conditions do not become over balanced. Aeration of the drilling fluid reduces down-hole pressure to approximately 150-200 pounds per square inch (psi). Accordingly, low pressure coal seams and other subterranean zones can be drilled without substantial loss of drilling fluid and contamination of the zone by the drilling fluid. *See* '523 Patent, Detailed Description at Col. 6, lines 18-32.

Accordingly, Applicant submits that the rejections based on *Gardes* are improper and respectfully requests that this rejection be withdrawn.

With respect to the remaining rejections, Applicant reiterates its prior arguments and further asserts the following. In response to the note in the Office Action that Applicant has made no attempt to point out any deficiencies in the prior art, aside from the contention that *Stanley* teaches away from underbalanced drilling using liquids, Applicant asserts that, for example, it has noted that the Underbalanced Drilling Manual discusses limitations to underbalanced drilling, many of which are dependent on the properties of the formations being drilled. *See* Amendment in Reply to Action of September 26, 2006, p. 16. Therein, Applicant also discussed other deficiencies such as the use of hindsight in the combination and the failure of various combinations. For example, Applicants discussed *Mueller* and *Stanley* failing to teach “Wherein drilling the well bore comprises drilling a main horizontal bore and a plurality of latent bores extending from the main horizontal bore.” *Id.* at p. 17. Applicant made further arguments to *Allen* in view of *Stanley* and *Stanley* in view of *Campbell*. *Id.* at pp. 18 and 19.

In regard to the Official Notice taken, Applicant concedes that coal seams are known to have pressures in the indicated range, but submits that does not make the combination thereafter obvious. *See* Official Action mailed September 26, 2006 (“2006 Office Action”), p. 9. Applicant traverses that gas-lift (as disclosed by *Smith*) and downhole pumps are known in the art to be useful for the same purpose, at least as applied in the 2006 Office Action. For example, the ‘000 Patent notes that the most efficient method for pumping water from a subterranean well, a sucker rod pump, does not work well in horizontal bores or around radiused bores. *See* ‘000 Patent, Col. 1, pp. 33-35. Other potential issues could be, for example, the potential impact of coal fines on a downhole pump and/or the risk of explosion resulting from pumping air into a natural gas environment. Thus, even if air-lift and downhole pumps are both useful for certain purposes, this does not thereby make both useful in a coal seam.

Therefore, in view of the above, Applicant respectfully requests withdrawal of the §103 rejections.

### CONCLUSION

Applicant has made an earnest attempt to place this case in condition for allowance. For the foregoing reasons, and for other reasons clearly apparent, Applicant respectfully requests full allowance of all Claims.

If the present application is not allowed and/or if one or more of the rejections is maintained, Applicant hereby requests a telephone conference with the Examiner and further requests that the Examiner contact the undersigned attorney to schedule the telephone conference.

Any circumstance in which the Applicant has (a) addressed certain comments of the examiner does not mean that the Applicant concedes other comments of the examiner, (b) made arguments for the patentability of some claims does not mean that there are not other good reasons for patentability of those claims and other claims, or (c) amended or canceled a claim does not mean that the Applicant concedes any of the Examiner's positions with respect to that claim or other claims.

Attached herewith is a separate Petition for Extension of Time to extend the period for response to the action dated May 7, 2008, for three (3) months to and including November 7, 2008 and an Information Disclosure Statement. The filing fees in the amount of \$1290 for the extension (\$1110) and late submission (\$180) fees are being paid concurrently herewith on the Electronic Filing System (EFS) by way of Deposit Account authorization. No additional fees are believed due at this time. However, if Applicant is incorrect, please apply any other charges or credits to deposit account 06-1050.

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Serial No. : 10/630,345  
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No other fees are believed to be due. However, should there be a fee discrepancy, please apply any deficiencies or any other required fees or any credits to deposit account 06-1050, referencing the attorney docket number shown above.

Respectfully submitted,

Date: November 7, 2008

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